

AVIATION

The Oldest American Aeronautical Magazine

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The Rumanian Sovereigns inspect France's newest aircraft at Le Bourget, near Paris

VOLUME
XVI

SPECIAL FEATURES

NUMBER
19

TO FLY OR NOT TO FLY
UNFAIR PUBLISHING COMPETITION
IMPRESSIONS OF THE NATIONAL BALLOON RACE
WHERE THE MONEY GOES — THE NAVAL AIR SERVICE

GARDNER PUBLISHING CO., Inc.
HIGHLAND, N. Y.
225 FOURTH AVENUE, NEW YORK

AIRCRAFT INSTRUMENTS



TURN INDICATOR

The Pioneer Turn Indicator is used for controlling the light of aircraft under conditions of poor visibility, so when they may cross it is desirable to eliminate passing so safely. Used in conjunction with the Bank Indicator, the pilot is able to maintain a laterally level attitude while flying straight and to bank in the proper angle when turning.



A compass, by itself, is of little value when flying in clouds or at night, as it is practically impossible for a pilot to hold his ship on a straight course, and a compass will only indicate correctly during straight flight or on very close turns. By using a Turn Indicator, which shows the slightest deviation from straight flight, the pilot avoids turning, and his compass will function properly. A straight course is maintained by steering as to have the indicator in the central position. By keeping the ball in the center of its tube the aircraft is held laterally level when flying straight, or on the correct bank when turning.

The Turn Indicator has been developed to its present state of efficiency and reliability through the continued efforts of the Sperry Gyroscope Company, the Lawrence Sperry Aircraft Company and the Pioneer Instrument Company. The latter company is now the exclusive manufacturer of these instruments, building them under Sperry patents at February 21st and October 24th, 1912. The Turn Indicator is also patented in France and Great Britain, and other patent applications are pending.

Pioneer Turn Indicators are used in the planes of the Army, Navy and Post Office Departments. Illustrated circles will be mailed upon request.

PIONEER INSTRUMENT CO
754 LEXINGTON AVENUE
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Frank Burt

For Human Locomotion

IN the "Outline of History", H. G. Wells writes that "by 1909 the aeroplane was available for human locomotion." It is an interesting coincidence that since 1909 exactly, The Glenn L. Martin Company has been building quality aircraft.

Without discounting the vital importance of airplanes in military and strictly governmental use, it seems certain that man's most useful exploitation of the air is destined to be as a medium for his own transportation in commerce and industry.

With this end in view, Martin Margins of Safety have not only been maintained since 1909 at an unusually high point, but are being steadily advanced today to new standards. Martin engineering practice is an ever-growing power for the improvement of human locomotion.

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CLEVELAND

Builders of Quality Aircraft since 1909

MAY 12, 1924

AVIATION

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OF THESE PLANE IN ITS PRESENT BUILDING PROGRAM

BOEING AIRPLANE COMPANY
CONTRACTORS TO UNITED STATES GOVERNMENT
GEORGETOWN STATION, SEATTLE, WASH.

PUBLISHER'S NEWS LETTER

A suggestion that appears to be very interesting is made by a well known figure in the aviation world. In a letter to AVIATION he writes:

"I notice by today's paper that General Dives is back in Chicago. He won't accept the job of Vice President and refuses to march before a brass band.

"Thinking that perhaps you might like to find a job for him, which would possibly be beneficial to the industry and give him much opportunity to serve publicly, and knowing that you realize something should be done to better conditions as they exist at present, I respectfully submit for your consideration, the advisability of recommending that General Dives study the aircraft situation at it now exists and report to Congress what recommendations he and a committee of experts would make for the betterment of these conditions. It would greatly benefit the government and the industry, for as I live up the coastline, all government employees have a healthy respect for General Dives and his recommendations would appeal to the public."

"Hall and Merritt" would probably be given a new twist if the second business head of General Dives investigated some of the results secured from some of the government's aviation expenditures since the War.

* * * * *

There has been a great deal of unfavorable comment concerning the publication by AVIATION of the cost of government aviation. One correspondent in Washington who hears the opinion of the mighty voice: "You are at last drawing blood. I have heard several people complain bitterly about these articles. Whether they are timely or not, from the point of view of aviation politics, you are a much better judge than I. There can be no arguments as to their truth." AVIATION is not seeking "blood." Nor is it concerned as to how the truth will affect the avo-political situation. Ever since the War American

aviation and all those connected with it have been under suspicion, charges or worse. Meritorious efforts have been leveled at almost every government agency, person and company that has had to do with our aerial development. AVIATION has had its full share even to the extent of being scorned on the floor of Congress as having improper motives in trying to bring out the facts of the cost of war aviation. Now that we are making a study of the present cost to the government of its air service, we are receiving bitter criticism. With an industry that is practically shut down, an Air Service that neither has enough airplanes nor proper types, a crisis in our aerial history is here. We believe with all the courage that is in us that the only way to a solution is a frank and open discussion of the whole problem of American aviation, not from the selfish point of view of any single service but as a business proposition. The stockholders of any company have the right to know how their money is being spent and what their employees are accomplishing. In just the same way the public should know just what they are getting for the \$70,000,000 they are spending for aviation and just what the 30,000 civilian government employees are accomplishing. The truth has never hurt anyone and on that ground we feel justified in giving such figures as are available.

* * * * *

Giving notice every branch of the death of security is an excellent rule. But when it is known that some officers in Washington who have a grievance against AVIATION for complaining about the unfair and improper methods of competitive publishing, some of the criticism may be better understood. We are very sure that we have had to use so much valuable space in our small paper to give the facts as we see them, but after four years of patent suits, with conditions constantly growing worse, we now tell our side of the controversy in that our readers can judge whether or not we have fair treatment from Air Service officers—L.D.G.

L. D. GARDNER
EDITOR
L. D. WICKSTEDT
MANAGER
GEO. MONTAGNA
BUSINESS MANAGER

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Wanted: A Cheap Airplane

AIRIDE from military and the commercial planes there seems to be a real demand for a sport plane which would be used, like the automobile or the motor boat, largely for pleasure and secondarily because the owner finds it useful as well as pleasurable in his business. These planes would at first be used by the younger generation and the number of such men who really can afford an expensive plane is very limited.

The financial problem of the sport plane is one of the most serious and one that we have already touched upon. However, as the Government has been asking planes at 10 per cent and less of their original cost, the average pilot has come to think that this is a fair price and that if he pays more he is getting "stung." To reinforce his argument he points to the Ford car and asks the manufacturer to produce a Ford of the air. He does not stop to think that when Ford started his prices were comparatively very high. Automobile prices did not come down until they were built in quantities of over thirty thousand a year. When an aircraft manufacturer speaks of quantity production he is thinking of an order for fifty or one hundred machines. There is a great need reduction in such an order, but the purchaser must realize that since the manufacturer can not go into production on the scale which brings about the cheapness of the automobile.

Aircraft manufacturers have found that their experimental work cost them a vast amount of money—engineering, overhead, building of shops, testing and adjusting of planes after construction—all add up and there is already a charge for the machine will not be a real success. Prices are correspondingly high and trouble is just beginning when he tries to sell his machines. However, the average aircraft manufacturer has had for an old customer the government which requires performance or speed of output a more important factor than his cost. He has been held up to certain rigid, standard specifications and his mind has not been free to work out new and cheaper designs and methods of production. On the other hand, he has had a steady customer who could and would pay high prices and has not been forced to realize that his cost is the key to commercial aviation.

To prove airplanes can only be compared to structural steel a custom built automobile body or high speed motor boat. Before the sport plane becomes popular it must come to this. The problem is a difficult one. The manufacturer cannot figure on real quantity production, so most have to make a single machine or as few parts as possible, but how to make parts in possible scale is difficult. For instance, stamped metal ribs, sliding over a tubular spar, such as was used on the DeSoto-McCormack plane could be used greatly to the great saving building. Fincher fittings could be used in many places in the fuselage. It is very conceivable that by

clever engineering methods all control surfaces could be made interchangeable, thus making one form to be put into production where four were used before. Striving after ever better performance has produced high speedness of parts. The designer of the sport plane must realize that he has a plane which performs efficiently, well and that his real problem is producing a cheap plane, even if it lacks beauty of form and looks slightly in efficiency and performance.

The National Balloon Race

A SOUTHERN National Balloon Race has gone into history, adding an contribution to that endless exploring of the atmosphere which is the basis of all our navigation. In spite of severe storms, the race, as usual, was devoid of accidents.

Don Owens's victory is popular, as he has been a prominent figure in all of our balloon races since the war, but till now he has never plotted a winning balloon.

Honeywell, the "greatest old man" of ballooning, who has been in every race that anyone in America can remember, always coming in among the leaders, has again added to his reputation by scoring second place.

Major Park, who placed third, is a worthy addition to the Army Air Service for our Gordon Bennett team which will compete for the famous trophy June 13, 1924, at Brussels, Belgium.

The most interesting of San Antonio deserves particular praise for the efficiency with which the contest was handled. The pilots and out-of-town officials seem to be unanimous in the opinion that it was the best managed race of its kind ever held in the country. There should be more air meets of this kind.

Our Cover

THIS week's cover illustration, showing France's newest aircraft built up by Le Bourget for inspection by the King and Queen of Romania, furnishes a typical example of the importance air power is assuming in international politics. Although the powers of the Romanian government to France was of brief duration, the official program of festivities included their visit to France's greatest aviation and commercial airport, where they passed in review several hundred hundred and present airplanes as well as the latest types of aircraft.

This picture is also of interest in connection with Lord Palmerston's famous "splendid little" flight, for the airplane used in the flight was a Delagrange 1910 D. bomber, which is, now for the register, identical with the two-seater open observation plane on which the French flew has flown from France to India in record time.

LIGHT PLANES AND GLIDERS

Edited by Edmund T. Allen

Two Types of the Light Plane

(Continued from last page)

With our present engines, climb is the highlight of light plane design.

The Parnall light plane is at almost the other extreme of light plane design. Through its design, it is the most advantageous and efficient type of light plane construction. The little Parnall is a nonmotorized two-seater of unusual design throughout. The wings are attached to the lower keelson of the fuselage and are braced to the top longerons by adjustable tension struts.

The pilot sits where the wing with an excellent view all around except directly below.

Constructional Features

The fuselage is constructed with spruce longerons and warm trim spruce diagonals, glued and nailed together with white wood preservative. This type of construction has been

embodied on the ends of these two tubes. In position the type of undercarriage varied accordingly.

The same engine is used in this machine as in the Vulture. In the Parnall, however, the Blackburn or the Bristol four-cylinder, air-cooled, carburetor-driven popper drive landing is preferred.

Two Sets of Wings Supplied

Two sets of wings are supplied for the Parnall, the small wings of 18 ft. span designed for the experimental job amounted to a 45 m.p.h. landing speed, and decrease a high speed of 145 m.p.h. The larger wings of 20 ft. span and 22 m.p.h. are given to the sportsman flying only on occasion, a landing speed of 30 m.p.h. and a top speed of 90 m.p.h. The entire for these wings is 18,000 ft.

This machine was the speediest one at Langley and it was considered one of the best light planes at the time.

These two types, being situated opposite ends of the possible range of light plane design, give a very fair idea of the technical status of light plane design in England at present.

France has produced equally excellent machines, although the French machine and engine of greater speed (up to 100 m.p.h.) has also been very active in the construction of light planes. Some interesting improvements over these machines may be seen in the American news this fall. And even for several companies are said to be interested in the production of the light plane, it may be available to the public at something less than the cost of these two French machines.

Light Plane Publicity in England

Mr. C. G. Tarrant writing in the *London Observer* writes:

"The light airplane competition to be held in September for prizes offered by the Air Ministry, the Duke of Edinburgh, and Capt. C. H. Wilson, will mark an important stage in the deliberate development, under a body of experts of a new class of airplanes. The glider competitions of 1927 and the light plane competitions at Langley last year were but preliminary, justified results are now in sight."

"What has been proved in the possibility of increasing the aerodynamic efficiency of the airplane. This was not a surprise to theorists, but it needed the gliding and light plane experiments to turn theory to practice. The necessity of fuel, shown by these machines, together with their remarkable performance in speed and height, have fit up for designers paths whose exploration promises to be fruitful. It is expected that a very low horse indicated to the ultimate development of 15-hp machines with 250 hp. motors to fly at 180 m.p.h. and possessing a gliding gradient of 1 in 10,000 m.p.h. is a very serious proposition from the constructional point of view. Such a machine is not yet possible but types have been tried for this year's tests, although the immediate object in view is different, say mark a step in the development indicated."

"The aim of the Air Ministry is to encourage a trained machine for the Royal Air Force which can accommodate, ship and flying costs will contribute to the extent of many thousands of pounds, and will speed up the flying lessons of pilot officers. That would be well worth the 3,000 pound prize-money; but there are sound flying school subjects, such as the management of land flying school in view."

The first machine to break a distance record of one of the large London flights shows a new record on the part of the pilot in flying, an interest that seemed all but dead before the advent of the light plane.

Long Island News

The Curtiss Flying School at Garden City, has opened on two new students for its course of flying starting May 1. They are as follows: Eugene Prosser, of Philadelphia; by mail from St. Louis, Mo.; Benjamin Menden, of the Republic of Colombia; and William J. King, of China.

The spring when will soon see in flight a number of late Italian military planes, now converted to more powerful powerplants.

Just there in the Ansaldo Balda, which the Curtiss Reclamation Co. has ordered with a 300 hp. Curtiss C-1 engine for commercial passenger service. It is a preliminary test flight, made by Pilot Joe Rao, the machine considerably delayed a visit from Mitchell Field June 1, 1930, when the 4000 day, heavily run away from the big day. It is estimated that the top speed of the Balda C-1 is approximately 130 m.p.h., while the landing speed is very low, somewhere around 10 m.p.h. The ship was originally designed for a 200 hp. SP-1 engine.

The other official representative of Italy will be the IV-1, belonging to the Aerial Aids Co., which are now being exhibited preparatory to being put into the manufacturing or on.

At Mail plane No. 336, which is fitted with the Looney wing (and M struts) has left Garden City for Oyster Bay, where it will perform a series of 46 ft. and a wing area of 510 sq. ft., a record 42 ft. 4 in. and 440 sq. ft. for the regulation Mail plane.

Flying tests are proceeding with the Ansonette Mail plane.

At Mail plane No. 336, which is fitted with the Belknap wing, was recently flown in Garden City from Garden City West and is now at Berry Field, Farmingdale, where Prof. G. H. Wilson is building three additional sets of wings for the Air Mail Service.

April 20th an special high efficiency wing curve, No. 500 built from the regulation Mail plane is that the wings are built, staggered and are braced to each other by only one pair of vertical struts, one on each side, with vertical struts bracing members running from the bottom wing ribs to the upper ends of the struts. During its flight of this type of wing the ship can be flown either in a conventional manner at 100 m.p.h. or in a high speed mode at 160 m.p.h. including the surface of the modified struts, which are in intermediate and the ends at which they meet. The first, these struts probably do not look anything like the wings put kind of wings.

The private flying boat which is under construction near Buffalo for Harold S. Vanderbilt is progressing satisfactorily. The drawing and final planning of the hull has been completed, and the rest of the hull work is now being fitted in hand. Construction has also started on the wings.

Parachutes for Civil Aviation

In view of the constantly growing use of parachutes in war and aviation, it is for air transport or exhibition purposes, movable interest attaches to the parachute manufactured by the Harlan Parachute Co., of Minneapolis, as follows: Company designs two types of parachutes: the Life Pack and the Exhibition Chute.

The Harlan Life Pack is built of Japanese silk, and has been eight closed, has that which is on the rest of the top

through the silk to the harness at the bottom. The pack itself is made of very strong waterproof canvas, thoroughly waterproofed. On the inside is the patent device for throwing the chute away from the pack. This device, consisting of a strong fiber board, in which powerful elastic springs are attached, is built into the pack and cannot possibly become entangled in the parachute. The releasing link in back of steel and is protected against accidental opening by a safety device. The harness is made from cotton webbing and fitted with steel rings and adjustable buckles so that it can be fitted to anyone and taken off in a moment.

The direction system, which is the base of the pack. These springs are held in position by a set of releasing link until parachute is folded and packed, and the releasing link is adjusted. When the releasing cord is pulled, the entire force of springs runs against parachute, which is instantly thrown away from the body when releasing cord is pulled. At the edge of each of the four feet or sides of the pack are folded strong elastic cords. These cords are pulled back when folds are held in position by releasing link. When link is opened by pulling the releasing cord these elastic cords are pulled out and the chute runs off the side under the force of the spring springs.

The releasing cord is so strong that no pull can break it and is also protected so that it cannot be accidentally opened. The cord is run over the right shoulder through a tube, and to the pulling end is attached a 2-in. iron ring, which is seen for the wearer in boots, girth and gait.

The life chute folded into the pack and stowed in the harness, ready for use, weighs but 35 lb.—the lightest aerial safety device made.

The Harlan Life Pack has been put in the current tests and it is possible to give a parachute and has proven highly successful.

The Harlan Exhibition Chute, which is built in any type form, is made of one piece of material, and is fitted with a life pack in that it is devoid of straps, so the weight of the operator hangs from the Exhibition Chute before it is released.

Harlan Life Packs and the Exhibition Chutes are successfully used by commercial aviation companies and by such well known parachute jumpers as Fritz Dorn, and Chas. Hershman, among others.

Kansas News

Glaucus Flying Circus, with flying fields at Adams and Brills, Kansas, is now being up an exhibition campaign for the 1934 season. Last year this flying outfit put on about 30 exhibitions for Chambers of Commerce, American Legion Posts, War Associations and others. They have got out a circular booklet at 20 cents, which is well illustrated with photographs of their personnel and equipment, and contains numerous testimonials from organizations for which they have worked.

The slogan used in the booklet, "We have shown over 240,000 m. and never had an accident," indicates the excellent quality of the personnel and equipment used by this organization. Their planes include a Waco six and Looney biplane. The five members of the outfit are: R. H. Garver, owner of the Circus and stunt flyer; Wayne Strife, stunt flyer; Ruth Garver, parachute jumper; Paul Dunsen, stunt aviator.

New Soapplane Record

The Contest Committee of the N. A. A. has received official notice from the International Aerobatic Federation (I. A. F.) that the world record for soapplane has been established as follows: Class C-1 Soapplane, with world load of 100 kilograms.

Altitude—(France) J. P. Laporte, FRA expert, Hyspan 340 hp. engine, at Argenteuil, France, March 24, 1934. Record, 2,540 m. (8,333 ft.).



English light planes—Top, the Handley Page, bottom, the Parnall "Pilot," both fitted with 750 cc. or Duplex engines.

found extremely light for structures in which the stress are low. No suspicion of construction and the absence of wear having appeared in the amateur builder and the sportsman pilot.

The wings are tapered in plan form. They are constructed of spruce with the front spar straight and the rear spar curved sharply forward. The entire spar is kept in the outer portion of the rear spar, giving to the machine a curved shape in the plan form. The tail is of steel tube construction, with steel ribs and landing gear. In plan it is triangular, the span pointing forward. The diameter of the rear spar, extending across the whole span of the front tail with the rear spar or spar is the center through the tail post. The middle is merely above the tail plane, a form of construction readily located in England.

One of the most features of the Parnall light plane is its landing gear. Rubber shock absorbers have been recently introduced, along with all new landing. Shock of landing are taken by the deflection of the ribs which at the point of attachment of the wheels overtake the points of support by a foot or more. The wire is held rigidly by two metal steel tubes forming an inverted Y with the tips at the rear of the wheel's axle. From the point the tubes diverge downward and forward, through rollers in the bottom of the fuselage, and thence to the axle. Thus the axle itself is



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